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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/715,227¹

11/17/2003

Zhiping Yin

3657.5US (98-0265.05/US)

5021

24247 7590 02/21/2007
TRASK BRITT
P.O. BOX 2550
SALT LAKE CITY, UT 84110

EXAMINER

LEWIS, MONICA

ART UNIT

PAPER NUMBER

2822

MAIL DATE

DELIVERY MODE

02/21/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action
Before the Filing of an Appeal Brief**

Application No.

10/715,227

Applicant(s)

YIN, ZHIPING

Examiner

Monica Lewis

Art Unit

2822

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 22 January 2007 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☐ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☐ The period for reply expires _____ months from the mailing date of the final rejection.
b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
(b) ☐ They raise the issue of new matter (see NOTE below);
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☐ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
The status of the claim(s) is (or will be) as follows:
Claim(s) allowed: _____.
Claim(s) objected to: _____.
Claim(s) rejected: _____.
Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:
See Continuation Sheet.
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). _____
13. ☐ Other: _____.


MONICA LEWIS
SENIOR PATENT EXAMINER

Continuation of 11. does NOT place the application in condition for allowance because: First, Applicant argued that "the Office has not demonstrated that the art described in the BACKGROUND section of the above-referenced application meets the requirements of any subsection of 35 USC 102...as no admissions regarding the source of the art ...have been made, the Office would have to show that such art was invented by another, publicly available, or the subject of a previously filed patent application." The MPEP discloses that the Background of the invention comprises two parts: a) field of the invention; and b) related art (See MPEP 608.01 c). Additionally, the MPEP discloses that the under the description of related art that there is a "paragraph describing to the extent practical the state of the prior art or other information disclosed known to the Applicant, including references to specific prior art or other information where appropriate" (See MPEP 608.01 c). The MPEP states that a person shall be entitled to a patent unless the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent (See MPEP 2132). Therefore, Applicant's Prior Art that was utilized in the office action does qualify as an admission of prior art because it had to be at least known prior to the filing of the application in order to be included in the background of the invention which makes it available to the Examiner under 35 USC 102 (a). Second, Applicant argued that "without the benefit of hindsight provided by the disclosure of the above-referenced application, one of ordinary skill in the art wouldn't have been motivated to modify the teachings of the purported prior art in such a way as to render obvious the subject matter." In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Third, Applicant argued that "it has been asserted that the BACKGROUND section of the above references application includes an admission that prior art semiconductor devices include silicon-nitride-comprising layers with, on average less than $1 \frac{1}{4}$ in-film particles or surface roughness per square millimeter...an incidence of about 40,000 or more in-film particles per eight inch semiconductor wafer...is equal to an arithmetic mean of at least 1.23 or more in-film particles per square millimeter." Applicant amended the claims from "on average" to "arithmetic mean." "Arithmetic mean" and "on average" mean the same thing as admitted by Applicant. Merriam-Webster discloses that "average is exactly or approximately the quotient obtained by dividing the sum total of a set of figures by the number of figures." The claim states "the first layer, and including, an arithmetic mean less than." Merriam-Webster defines "about" as reasonably close and "average" as an estimation or approximation to an arithmetic mean. Although the specification does not specifically disclose "arithmetic mean," Applicant disclosed in the response (12/16/04) that "semiconductor devices that have an imperfection density of less than about 40,000 particles of about 120-150 nm dimension per eight inch diameter...result is a maximum imperfection density of 1.27, or about $1 \frac{1}{4}$, particles or surface roughness features per square millimeter." The prior art discloses that in-film particles have a size of about 120-150 nm and a density on the semiconductor device structure of about 40,000 or more per eight inch diameter wafer. "An arithmetic mean, less than" encompasses the limitations of more than and less than. Therefore, the prior art is less than and more than "1.23 in-film particles or surface roughness features per square millimeter of surface area." In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) (The prior art taught carbon monoxide concentrations of "about 1-5%" while the claim was limited to "more than 5%." The court held that "about 1-5%" allowed for concentrations slightly above 5% thus the ranges overlapped.); *In re Geisler*, 116 F.3d 1465, 1469-71, 43 USPQ2d 1362, 1365-66 (Fed. Cir. 1997) (Claim reciting thickness of a protective layer as falling within a range of "50 to 100 Angstroms" considered prima facie obvious in view of prior art reference teaching that "for suitable protection, the thickness of the protective layer should be not less than about 10 nm i.e., 100 Angstroms." The court stated that "by stating that suitable protection is provided if the protective layer is about 100 Angstroms thick, the prior art reference directly teaches the use of a thickness within applicant's claimed range."). Similarly, a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). Finally, Applicant argued that the "prior art does not teach or suggest that the surface of a layer that comprises anti-reflective material may be substantially free of at least one of measurable particulates or surface roughness....Fig. 4 of the above referenced application shows a large number of in-film particles 44 on the surface of dielectric anti-reflective coating ("DARC" film 42)...the above referenced application explains that the presence of about 40,000 or more non-uniformities or particles in a silicon nitride layer." Merriam-Webster defines "substantially" as being largely but not wholly that which is specified. Although the prior art discloses in-film particles (44) on film 42, it appears from figure 4 that the first layer is "substantially" free of at least one of measurable particulates or surface roughness."